7. Choose any non-zero vector $\vec{w}$ which is not parallel to $\vec{u}$. Then $\vec{v} = \vec{u} \times \vec{w}$ will be orthogonal to $\vec{u}$. (Note if $\vec{w}$ and $\vec{u}$ were parallel the $\vec{u} \times \vec{w} = \vec{0}$).

Alternatively, find $\vec{w}$ such that $\vec{w} \cdot \vec{u} = 0$
$\vec{w} = (x, y, z)$ $\vec{w} \cdot \vec{u} = 2x - 3y + 5z = 0$.
Assign values to 2 of the variables, and solve for the third.

8a. $\vec{u} \cdot (\vec{v} \times \vec{w}) = \begin{vmatrix} -1 & 2 & 4 \\ 3 & 4 & -2 \\ -1 & 2 & 5 \end{vmatrix} = -10$

9. a) -3
b) 3
c) 3
d) -3
e) -3
f) 0

by interchanging rows in the matrix representing $u \cdot (v \times w)$ we get all of these values.

11. a) $\begin{vmatrix} -1 & -2 & 1 \\ 3 & 0 & -2 \\ 5 & -4 & 0 \end{vmatrix} = 16 \neq 0$ so the vectors are not coplaner

b) Yes, co-planer

c) No